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OPERATIONAL ART AND THE HUMAN DIMENSION OF WARFARE
IN THE 21ST CENTURY

By

David W. Coffman
Major USMC

A paper submitted to the faculty of the Naval War College in partial satisfaction of the requirements of the Department of Joint Military Operations.

The contents of this paper reflect my own personal views and are not necessarily endorsed by the Naval War College or the Department of the Navy.

Signature: David W. Coffman

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15. Abstract: The end of the Cold War and the transition to the information age have combined to foster a climate of radical change within the American military. This paper examines the relationship between the physical and moral elements of military power as information technology is adapted to military use. Power is a function of will and means. "Will" represents the incalculable and essentially unchanging moral factors that permeate the conduct of war and make it unpredictable. This human dimension of warfare is its central, defining characteristic. Because war is based on human interaction it is more art than science. "Means," the physical factors of war, are in a period of revolutionary change. New technology and related new models for organizational behavior portend a "revolution in military affairs" that enthusiasts suggest is changing even the very nature of war. But while new technology may exponentially improve the tools of war, it will not eliminate the fog of war or quantify the moral factors. A survey of emerging service specific and joint warfighting concepts highlights the danger of an over-reliance on technological superiority and "the American way of war" against 21 st century foes. We must adapt the new technology of the information age to the operational art so as to obtain its benefits without losing sight of the human dimension.			
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INTRODUCTION: WILL, MEANS, AND THE OPERATIONAL ART

War is one of the most complicated and most chaotic of human endeavors. It is a complex interaction of a multitude of factors under the most trying of conditions in pursuit of the most important of objectives. It is a violent transaction where political objectives are bought with the blood and treasure of a nation. Even as traditional, state on state "wars" yield to what American doctrine calls "military operations other than war" (MOOTW) across a spectrum of conflict,¹ the central aim of military operations remains the same—the application of military power to achieve certain ends.

Military power is a function of both will and means. "Will" represents the human dimension of warfare, the incalculable and essentially unchanging moral factors that make war unpredictable and inevitable. "Means," the second element, is more easily measured and subject to revolutionary change. Means is the physical factors, the tools of war. In American doctrine, the operational commander is the "warfighter" who employs our power (will x means) against an enemy's power (will x means) to achieve victory. This daunting task is the operational art. Success depends on how well the operational commander understands the relationship between will and means and employs the power under his command.

The information age is producing revolutionary changes in physical factors (means) that offer the potential for exponential improvement in our military capability. Service responses to this new technology tend only to reinforce existing cultural biases regarding the balance between moral and physical factors. Meanwhile, our infant joint warfighting concepts are dangerously reliant on technological superiority for success. While information age technology should be utilized to expand our capability, these changes will not alter the nature of war or the supremacy of moral factors (will) in combat. As we develop warfighting

concepts for the 21st century we must avoid the trap of the technological fix and focus on a better understanding of the human dimension of warfare. While the science of war in the information age will undoubtedly change, the art of war will remain decisive. In the operational art, technology remains necessary, but not sufficient.

WILL: THE HUMAN DIMENSION OF WARFARE

War is the most “human” of endeavors, for it always involves ultimate issues of life and death, as combatants use deadly force in an attempt to make their adversary submit to their will. Wars still begin on the basis of Thucydides distinctly human incentives of honor, fear, and self-interest. Once the organized violence of combat begins, all the best and worst of mankind appears—the noblest self-sacrifice and the most horrible of atrocities. The military historian John Keegan poignantly captured this human dimension of warfare in his book The Face of Battle:

What battles have in common is human: the behaviour of men struggling to reconcile their instinct for self-preservation, their sense of honour and the achievement of some aim over which other men are ready to kill them. The study of battle is therefore always a study of fear and usually of courage; always of leadership, usually of obedience; always of compulsion, sometimes of insubordination; always of anxiety, sometimes of elation or catharsis; always of violence, sometimes also of cruelty, self-sacrifice, compassion; above all, it is always a study of solidarity and usually also of disintegration – for it is towards the disintegration of human groups that battle is directed.²

What makes us human is our capacity to make decisions. But decision-making in battle--whether by individual soldiers, commanders, or their civilian leadership--is not always based on a rational calculus or complete information. Often it is a matter of intuition and a will to action rooted in such complicated emotions as honor (or disgrace), courage (or fear), and even love (or hate). Thus, the human dimension makes warfare inherently unpredictable. These hard to quantify moral factors are the basis of “will” – the critical first element of power as outlined above. Clausewitz addressed their importance and inscrutability:

They [the moral factors] constitute the spirit that permeates war as a whole, and at an early stage they establish a close affinity with the will that moves and leads the whole mass of force, practically merging with it, since the will is itself a moral quantity. Unfortunately, they will not yield to academic wisdom. They cannot be classified or counted. They have to be seen or felt.³

The slow pace of evolution means that the dynamics of human behavior are essentially changeless. Throughout history, we see again and again the same glories and the same follies. Keegan's "face of battle" shows itself at Agincourt, Waterloo and the Somme—and wherever men fight. Again and again, the human dimension of war determines an outcome contrary to rational calculus or a simple comparison of means. Thus, war remains a uniquely human endeavor and fighting power remains inextricably linked to the moral factors that motivate and animate men.

Doctrinal rhetoric assigns a position of honor to the human dimension of warfare.⁴ But its importance is easy to overlook in peacetime or when we lack a peer competitor. As Helmuth Von Motlke noted, "In peace, the moral element seldom comes to be of value; in war it forms the precondition of every victory."⁵ Our position as the world's only superpower lulls us into ignoring the element of will and placing our trust in clearly superior means. Further, the extent to which the moral factors "permeate war as a whole" is often glossed over when technological revolution offers the hope of exponential improvements in means. The United States stands precisely at this dangerous point as technological change tempts us to conclude that even the very nature of war has changed.

MEANS: THE REVOLUTION IN MILITARY AFFAIRS

Contrary to enigmatic moral factors, the physical elements of power—from economic capacity to specific platforms (ships, airplanes, tanks, etc) to supporting structures (communications, logistics, etc)—are more readily quantifiable. Of course, calculations of

force include even the individual soldiers themselves, either in raw numbers or adjusted for intangible moral factors. At its most extreme, this practice of the science of war has reduced planning and execution to a rational calculus of force ratios which totally ignores the impact of irrational decision-making or “super-human” achievement.⁶

While human behavior changes so slowly as to be negligible, the means men employ to kill each other sometimes change very rapidly. Precisely because war involves the most critical of issues, societies have always raced to apply new technology to its conduct. In fact, much of military history is the study of the changing means of war, with emphasis on revolutionary changes in weaponry and techniques, for example from crossbow to gunpowder to nuclear weapons. Undoubtedly, the information age we have entered in the last generation is also revolutionizing the means of war. Futurists such as Alvin and Heidi Toffler offer a compelling argument that we are entering a new “third wave” world based on knowledge as the primary instrument of power. The industrial, mechanized second wave world where conflicts were decided by state on state total war is giving way to an information age where information technology and the control and use of knowledge will become the prevailing paradigm.⁷

This epochal shift to an information age offers new technology and new modes of organization that portend a “revolution in military affairs”(RMA). Proponents of the RMA are calling for doctrinal innovation and organizational change to accompany radical new technological development and usher in a new age of warfare.⁸ While there are many variants to what the RMA may bring, “the revolution’s mortar and pestle are stand-off weapons and information dominance,”⁹ which will allow masters of the new operational art to dominate all aspects of the battlefield--air, land, sea, undersea, space, and most importantly cyber-space.

THIRD WAVE WARRIORS?

Believers in the "revolution" argue that "fundamental changes are affecting the very character of war," fundamental changes "dominated by the co-evolution of economics, information technology, and business processes and organizations."¹⁰ Most continue to emphasize the role of humans, and may even consider it critical, but argue that the "third wave warrior" is quite different from the classic model as "the changed nature of war places increasing value on education and expertise and less on old-fashioned military machismo and brute force."¹¹ The extreme position, however, denies any unique moral dimension to the warrior: "We may be special people in the armed forces, but we are not a special case."¹²

The information age is radically changing the tools of war. But people will still operate and direct those tools--people subject to the same physical, mental, and emotional limitations as the soldiers of earlier ages. In fact, new technology can sometimes amplify the impact of human factors, such as night-fighting capability causing circadian rhythm imbalance and increased exhaustion. Further, human decision-makers will still decide how, when, where, and why to employ the means of war. While stand-off capabilities may reduce the number of troops exposed to traditional close combat, worldwide communications connectivity and information warfare will at the same time enlist a new army of cyber-warriors who will experience their own elements of stress. Thus, even for the "third-wave warrior" warfare will remain, as the Army describes it, "a test of the soldier's will, courage, endurance, and skill."¹³ Perhaps most importantly, war will still involve human interaction in a contest of wills, fought with technology and weapons but fought for hearts and minds.

SERVICE RESPONSES TO THE RMA

Despite the current trend towards “jointness,” the individual services are still responsible for organizing, training, and equipping our military forces—the decision-makers an operational commander employs in battle. Carl Builder, in “The Masks of War,” analyzed service culture and its impact and his framework is a good starting point for examining service responses to the changing environment of the information age.¹⁴

Far removed from the close combat of the ground war, the Air Force and Navy both have historically focused on the means side of the power equation. Born out of revolutionary technological change, the Air Force has always worshipped at the altar of technology, seeking better and better ways to employ awesome technology in air (and space?), preferably against strategic targets to gain a decisive victory. Similarly, the Navy employs platforms (networks?) at sea, undersea, in air (and over land?) to destroy enemy platforms (networks?).

RMA enthusiasts in both services see information age technology as an opportunity to perfect their favored battlefield roles. For the Air Force, improved intelligence and precision delivery capabilities have breathed new life into strategic attack theory. Colonel John Warden notes that new and better technology “has made it possible to destroy the physical side of the enemy.”¹⁵ If enemy means (physical factors) is reduced to zero, enemy will (moral factors) should either crumble or be rendered irrelevant. Thus, war is reduced to a targeting problem, now finally solvable by the new technology of the information age. The only debate is over which targets are most appropriate.¹⁶ Strategic attack fans tout the air campaign of Desert Storm as both proof of our capability to induce strategic paralysis and as a preview of 21st century warfare where the technological superiority of our air power can result in decisive victory.¹⁷

For the Navy, the prevailing concept for warfighting in the information age is network-centric warfare (NCW). Networked information, command and control, and shooter grids interact to exponentially increase battlespace awareness and combat power. Information superiority and standoff, precision delivery capability are enablers for battlespace dominance in all dimensions.¹⁸ While perhaps revolutionary in its application of networking concepts and technology, NCW is an evolutionary change in the traditional Navy warfighting concept—from platform versus platform to network versus network (or our network-centric versus their platform-centric). The aim is still the protection of our means and destruction of the enemy's.

Both strategic attack and network-centric warfare are subject to the same critiques. Major Karen Wilhelm has criticized strategic attack theories for an over-reliance on “technological asymmetry.”¹⁹ She asserts that “the technology of strategic attack (delivery technologies and analysis of enemy technologies) has replaced true strategic thinking.”²⁰ Likewise, NCW threatens to replace strategy with technology. The increased combat power “is manifested by high probability engagements against threats capable of defeating a platform-centric defense.”²¹ NCW is a vision for Navy battlespace dominance, but a clear connection to operational or strategic objectives is lacking.

Secondly, the foundation of success for both concepts is perfect information. Wilhelm notes that strategic attack is dependent on “the elimination of fog and friction”²² -- the ability to know completely the enemy's physical factors, isolate them from moral factors, and completely destroy (or paralyze) them. As critics have pointed out, NCW also makes an assumption of perfect knowledge and American information superiority--an assumption that is not valid in all scenarios as evidenced by our recent experiences in Somalia.²³

Finally, the fatal flaw of both these concepts, if viewed as independent paths to victory, is that they clearly place means above will. If our power is inextricably tied to means versus means approaches that ignore or underestimate the human dimension of warfare, we are susceptible to precisely the kinds of asymmetrical responses that are likely to characterize the post Cold War world. An implacable enemy can effectively target our will without matching our sophisticated means. And the bare hands of the last enemy soldier or civilian are still means-unless we are willing to kill them all!

Not surprisingly, the tension between technology and the human dimension is most apparent where the boots hit the mud. The Marine Corps, whose altar is the Corps of Marines itself, has always grounded its ethos in the supremacy of the moral element in war. The Corps' current slogan—"making Marines, winning battles" is a concise reflection of that culture. In fact, recent operational experience and training exercises have led towards further emphasis on the human dimension, considered critical in the 21st century warfare that the Commandant calls "the three block war."²⁴ The Marines are insistent that "our forces must be able to handle those things that technology alone cannot solve."²⁵

The Marine Corps' respect for the human dimension of war and skepticism of the RMA is especially relevant because of the Corps' record of successful innovation and historical experience in "small wars" strikingly similar to the kinds of MOOTW becoming commonplace in the post Cold War world. But to compete for resources for an improved 21st century amphibious capability (MV-22, AAV), the Marine Corps must also sing the praises of revolutionary new technology. In fact, if the Marine Corps does not actively pursue technological modernization, especially in information and communications systems, it risks being incapable of effective participation with its sister services in high-tech, information age

warfare. The challenge is to be prepared for MOOTW (its historical niche and cultural preference) and the joint information age battlefield of the major theater war (MTW).

The Army's response to the RMA may be most telling for the future direction of our military. As Builder notes, "the Army's dream of war . . . if irrelevant to the actual wars it may be asked to fight, is likely to be more costly to the nation's vital interests. . . . What the Army contributes most to any conflict are people trained in those arts of war relevant to the conflict at hand."²⁶ Builder goes on to analyze what he characterizes as "the Army's identity crisis" as it tries to move from a clear-cut European, Cold War strategy and guess at what the next war will hold.²⁷ This identity crisis carries over into the debate over the human dimension of combat.

While the Army has traditionally been a people-oriented business, it is lured to the high-tech "toys" that will best equip it for the sophisticated, information age battlefield. A tendency to fight platforms, Navy style, is apparent, especially when the platforms are as capable as the Army's current inventory. General Dennis Reimer (Army Chief of Staff) gives evidence of this shift by noting that "we are building systems that far outstrip the limits of human endurance," and by looking to a "multiple crew" concept to keep platforms engaged in the fight beyond the limits of their crews.²⁸ Army initiatives embedded in Force XXI and the Army After Next, such as the digitization of the battlefield, seek to drastically improve capability by harnessing the new technologies of the information age. In fact, the Army is even coming to consider the individual soldier as "both a subsystem of our aircraft and ground vehicles, and as a system himself."²⁹

The Army is attempting to walk the line between a high tech, information age capability and a renewed focus on people skills, such as leadership and decision-making. Even while

radically altering equipment and organizations, the Army is trying to “focus on fundamentals of soldiering in these tough turbulent times.”³⁰ Recent Army professional journals reveal an unmistakable call for more emphasis on what stays the same (leadership, training, cohesion) and less on what changes (technology, equipment).³¹ Further, Army traditionalists resist radical organizational changes, insisting that dominant maneuver requires a large, conventional land army and that decisive victory will always ultimately depend on soldiers on the ground.³²

The Army’s attempt to incorporate new means, but to enable its soldiers and commanders, not replace them, represents a good balance between the human and technological dimensions. Despite RMA enthusiasts’ frustrations at the slow pace of change in the Army, its traditional view of warfare and cautious approach to new technology match its cultural bias and are appropriate to its important role as a conventional, manpower based force. But, like the Marine Corps, the danger for the Army is that it is preparing for the wrong war. The Army’s focus in training, organization, and equipment is on large scale land combat, based on the assumption that given reasonable training time forces can successfully shift to MOOTW. A return to a period of “small wars” where moral factors are both overwhelmingly critical to success and exceedingly difficult to understand and employ will test this assumption. The risk the Army is accepting is that the 21st century land warrior may be incapable of fighting and winning in an environment where his technological edge is inapplicable or irrelevant.

JOINT WARFIGHTING: AN AMERICAN WAY OF WAR FOR THE INFO AGE?

Russell Weigley and others have documented the development of an “American way of war” which relies on technology to win quickly with minimum casualties in a strategy of

annihilation.³³ This concept is now expressly delineated in doctrine, with the additional requirement of minimizing even enemy casualties. Thus, in war “the goal is to win as quickly and with as few casualties as possible.”³⁴ The American way of war reflects both our love for technological “things” which are ever bigger, faster, and better and our deep-rooted core belief in the sanctity and superiority of the individual. The approaches to war in the information age outlined above reflect this dichotomy. We are drawn to new technology (information technology, sensor networks, precision weapons, etc) that promises quick decisive victories with minimum casualties on both sides and that also takes advantage of our perceived superiority in the moral factors of will, morale, and initiative. Our recent success in Desert Storm raises the expectations that we can win such victories and tempts us to conclude (erroneously) that “our” way is always best and always suitable.

Joint Vision 2010 (JV2010) is a “conceptual template for future joint warfighting”³⁵ that walks the line between the two poles of the American way of war--between the critical role of people and the use of ever more dazzling technology as a means to win at acceptable cost. JV2010 is thus a vision of how to “strengthen our military capabilities by taking advantage of improved technology and the vitality and innovation of our people to prepare our forces for the 21st century.”³⁶ But technology is clearly at the core of joint warfighting, as our national military strategy, JV2010, and the growing body of joint doctrine all build, in the words of one critic, “an operational template that converts technological superiority into operational concepts for gaining rapid decisive strategic superiority and victory.”³⁷

The warfighting concept of JV2010 is fundamentally flawed on several counts. First, it prepares us only for the American war: short, hi-tech, and decisive. We are planning to fight someone who fights like us and thinks like us. Or, as the strongest believers in the

information revolution propose, our superior capability as a culture to process and use information will itself prove decisive.³⁸ Both views are dangerously ethnocentric. Not all actors prefer peace to war. Not all opponents hold human life in the same high regard we do. And not all opponents will opt to compete head to head against our technological advantage. In fact, clever enemies will recognize and exploit these differences by challenging us asymmetrically, as discussed further below.

Most importantly, JV2010 assumes that dominant maneuver, precision engagement, focused logistics, and full-dimensional protection are always the correct ways to achieve our strategic ends throughout “the full range of military operations.”³⁹ Rather than focusing on how we can apply military power to achieve strategic aims, we are focusing on how to acquire and employ better and better means, presupposing that these means are appropriate to the ends desired. For example, battlespace dominance may not be the right application of force to “shape” the strategic environment or “respond” across the spectrum of conflict as our national military strategy calls us to do.⁴⁰ Carl Builder thus cited JV2010 as an example of “tactical thinking.”⁴¹ It assumes that superior means will automatically lead to victory. Here we ignore the human dimension of warfare at the strategic level, both in our enemy and in our own civilian and military strategic leadership who must correctly apply military force to defeat the enemy will.

INFORMATION AGE BUSINESS MODELS AND THE NEW “SCIENCE” OF WAR

Many military innovators are turning to a business world fundamentally altered by information technology for answers to how to organize, equip and fight an information age military, drawing on models such as “learning organizations” and “self-synchronization.”⁴² Most of these approaches call for revolutionary changes in organization and practice that

threaten traditional military methods just as they challenged and altered conventional corporate organization and culture. For example, information technology has enabled businesses to flatten organizational structure. By pushing information and decision-making down, the best organizations become self-synchronizing, adjusting to changes more quickly and effectively than old style hierarchical organizations, and even altering the organization itself in response to changing situations or requirements.

The danger in applying business solutions to the conduct of war is in failing to recognize what is not transferable. For example, an instinct for self-preservation alien to business may compel a company commander in a firefight to call for as much fire support as he can get even though the support might best be used elsewhere in "the system." Certainly, applying so-called "better business practices" to acquisition, logistics, and other business-like functions has been valuable and worthwhile. But at a certain level, war is not analogous to business. We should be wary of approaches that ignore these differences. Network-centric warfare, for example, is a direct and unashamed call for the military to emulate business information age methods, meriting the response in Colonel T. X. Hammes rebuttal that "War Isn't a Rational Business."⁴³

The significance of the human dimension in warfare is precisely what distinguishes it from private enterprise. We are a special case--because we are authorized to kill and are willing to be killed. Certain tasks are reserved to governments alone (most significantly the use of force) precisely because they cannot be accomplished under the motives of self-interest that animate business life.⁴⁴ And organizations that conduct their transactions in human lives require different rules and procedures than those that pay with money.

Similar to the hopes of applying successful business models to the problems of war is the application of the so-called “new sciences,” such as chaos and complexity theories. These models renew the search for scientific methods to understand and predict human behavior and are the latest attempt to perfect a science of war. The appeal is obvious, as such theories seem to satisfy the requirements for better modeling and prediction necessary for perfect information and rational calculations of human behavior. But quantifying the moral factors involved in war is a vain hope. In fact, the more complex the system or endeavor, the more a single input upsets the predicted outcome.⁴⁵ Rather than creating a new science of war, then, our increasing knowledge about complexity, chaos, and the behavior of systems seems instead to reinforce the significance of the human dimension of warfare. The single heroic or irrational or foolish action may have an even greater impact as war becomes more complex.

THE OPERATIONAL ART IN THE 21ST CENTURY

American operational commanders in the information age will be expected to win “the American way” using the capabilities developed by the services and melded together in the joint arena. They will operate across the levels of war and make critical decisions about how, where and when to apply combat power in order to achieve strategic aims. The services’ different warfighting concepts and distinct cultural identities as outlined above can be strengths if matched to the right tasks and applied in creative combinations to create synergistic effects. The operational commander must recognize their strengths and weaknesses and, above all, understand the relationship of will and means to combat power.

Two roles of the operational commander are particularly related to the human dimension of warfare and form the essence of battle command: decision-making and leadership. Information age technology sets several traps for operational decision-makers. First is the

notion that the ages-long quest for certainty will soon be over. But humans will still distort accurate and detailed data as they try to turn it into worthwhile knowledge. The interaction of free-willed combatants will still be unpredictable. And even though information technology may accelerate the collection and processing of data, commanders will still have to strike a balance between timeliness and accuracy of information in their decisions.⁴⁶ Judgement and intuition will still be important traits for commanders. Army experiments and battle command training reinforce this view. Thus, "the Army is moving the nexus or balance of leadership and command away from a strict scientific application of knowledge toward a more creative, intuitive process which emphasizes the human dimension of battle."⁴⁷

Secondly, new technology tempts us to centralize decision-making. The Army is in the thick of this debate, unsure whether technological change will tend to enable the front-line soldiers or strip them of flexibility as complex information systems feed the better picture to higher headquarters far removed from the action. There is concern that the much-vaunted "digitization" of the battlefield will result in "emasculatation of the subordinate commander,"⁴⁸ when, for perhaps the first time in history, the higher commander may have a better picture of what is going on than his subordinate on the scene.

Using information technology to empower subordinates matches our cultural bias towards the individual and is supported by business models and the combat record of armies that emphasized de-centralized decision-making and freedom of action at subordinate levels.⁴⁹ The demands of MOOTW and the confused, urban battlefields of the 21st century emphasized by the Marine Corps also favor de-centralized decision-making. Here, General Krulak's "strategic corporal" can determine the success or failure of U. S. policy with one decision.

Just as the “third wave warrior” may be radically different from traditional warrior models, 21st century technology and warfighting methods challenge our traditional notions of leadership. But experimentation and operational practice reinforce the importance of personal leadership even as the increased dispersion of information age battlefields make it more difficult. In Desert Storm, perhaps best described as a transition war astride the industrial and information ages, ground force commanders specifically operated well forward so they could “get a feel for the battle and to increase their soldiers’ morale and spirit during the fight.”⁵⁰ Likewise, experiments with information systems technology and digital communications reveal that certain orders are best delivered via traditional means (voice or in person) in order to exchange clues about moral factors not decipherable from text on a computer screen.⁵¹ As generations of Americans who grew up with computers and e-mail come into positions of power and information technology better captures human elements, these traditional methods of communication may further diminish in importance. But gauging the moral strength of the force, demonstrating a sense of shared danger and hardship, and reinforcing a warrior ethos will still require active personal leadership. While the complexity of warfighting in the information age will test all the capabilities of our operational commanders, effective leadership can ensure our will prevails.

THE ENEMY: A CONTEST OF WILLS

Our most critical mistake in regard to the human dimension of warfare is ignoring its role in the enemy’s power equation. Many of our warfighting concepts for the future, such as that outlined in JV2010, are so intertwined with the American way of war that they fail to recognize other, drastically different ideas about how to fight. Technology based planning

has replaced threat based planning, particularly in MOOTW, where "our" model of warfighting does not fit the requirements of most situations.

Increased military involvement against terrorists, drug lords, and in the middle of centuries old ethnic strife pits us against foes with significantly different value systems. For example, while we consider our respect for human life a strength, our enemies use it against us. This was an effective strategy in Somalia, where Somali fighters used their own women and children as human shields and in the Balkans, where Serbs chained U.N. troops to potential targets.⁵² These are "asymmetrical" responses of a different order that capitalize on cultural differences in a contest of wills. We need only look at the eight year Iran-Iraq war, complete with chemical attacks and estimates of over one million dead to see that our predisposition towards peace and minimum loss of life is not shared by our potential enemies.⁵³ While that war pitted Muslim against Muslim, the much-discussed likelihood of a coming "clash of civilizations," as forecast by Samuel P. Huntington,⁵⁴ should call us to a careful study of the moral elements of potential enemies from very different cultural backgrounds. For our potential enemies human waves, terrorism, weapons of mass destruction, or perhaps other, new methods all offer ways to defeat the vain superpower who relies on superior forces and technological magic instead of appropriate forces and mental agility.

CONCLUSION: COHESION AND DISINTEGRATION

Because the means of war are in a period of revolutionary change, we must focus on incorporating information age technology into our practice of the art of war and exploit the opportunities it offers. But technology will not solve the eternal problems of war, for "war is a matter of heart and will first; weaponry and technology second."⁵⁵ The real key is the

relationship of means and will as the latest “revolution in military affairs” challenges yet again the role of the human dimension of warfare. The operational art is much more than just applying force against force. The best operational commanders can see and feel the moral factors at work—on both sides. By understanding and employing will and means they maximize their combat power, foster cohesion among their forces and achieve the aim of battle—the disintegration of the enemy.

NOTES

¹ Joint Chiefs of Staff, Doctrine for Joint Operations (Joint Pub 3-0) (Washington, D.C.: February 1, 1995), V-1.

² John Keegan, The Face of Battle (New York: Vintage 1977), 298.

³ Carl Von Clausewitz, On War ed. and translated by Michael Howard and Peter Paret (Princeton, NJ: Princeton University Press, 1976), 184.

⁴ See, for example, the section on "The Fundamental Nature of War" in United States Air Force, Air Force Basic Doctrine (AFDD1) (Washington, D.C.: September 1997), p. 6 or the section on "The Human Dimension" in United States Army, Operations (FM 100-5) (Washington, D.C.: June 14, 1993), p. 14-1. Joint doctrine's emphasis on moral factors is discussed further below.

⁵ Helmuth von Moltke, Moltke on the Art of War, ed. Daniel J. Hughes, trans. Harry Bell and Daniel J. Hughes (Novato, CA: Presidio Press, 1993), 172. I was led to this quote by Maj Reinwald's article cited below.

⁶ The quest for regulating principles and an exact science of war has been an on-again, off-again affair as scientific advances in other fields have promised more accurate modeling and prediction for warfare. For the history of this endeavor, see, for example, John Shy's survey of the "Jominian line" in John Shy, "Jomini" in Makers of Modern Strategy ed. Peter Paret (Princeton, NJ: Princeton University Press, 1986), especially pp 183-184. I return to the possibilities of war as science below in regard to the "new sciences."

⁷ The "powershift" to a "third wave world" is described in Alvin Toffler, Powershift (New York: Bantam, 1990) and placed into military context in Alvin and Heidi Toffler, War and Anti-War (Boston: Little, Brown and Company, 1993).

⁸ See, for example, James R. Fitzimonds and Jan M. Van Tol, "Revolutions in Military Affairs," Joint Force Quarterly, Spring 1994, 24-31.

⁹ David C. Gompert, "National Security in the Information Age," Naval War College Review, Autumn 1998, 30.

¹⁰ Arthur K. Cebrowski and John J. Garstka, "Network-Centric Warfare: Its Origin and Future," Proceedings, January 1998, 29.

¹¹ Toffler, War and Anti-War, 74.

¹² Cebrowski, 35.

¹³ FM 100-5, 1-2.

¹⁴ Carl H. Builder, The Masks of War (Baltimore: The Johns Hopkins University Press, 1989). The culture framework used here draws on Builder, the specifics are mine. Builder does not address USMC culture, but I have used his measures/metaphors (e.g. "altar") in my analysis. The concepts discussed below (strategic attack, network-centric warfare, the three-block war) are not intended to be all encompassing or to match specific service doctrine. Rather, they offer a representative sample of views on the role of moral versus physical factors, colored by service cultures and roles.

¹⁵ John A. Warden III, quoted in Karen S. Wilhelm, "The USAF and Technological Assymetry: A Critique of Current Air Power Theory and Doctrine (Unpublished Monograph, U. S. Army Command and General Staff College, School of Advanced Military Studies, Fort Leavenworth, KN: 1995), 24.

¹⁶ Colonel Warden was a key player in re-starting this debate with his theory of concentric rings, delineated in John A. Warden III, "The Enemy As a System," Airpower Journal Vol. 79, no. 1 (Spring 1995), 41-55. A recent attempt at revising strategic attack theory representative of the targeting debate is Edward J. Felker, "Airpower, Chaos, and Infrastructure: Lords of the Rings," Essays 1998 (Washington, D.C.: National Defense University Press, 1998), 55-88.

¹⁷ Air Force Basic Doctrine (AFDD-1), 41.

¹⁸ Cebrowski, 33-34.

¹⁹ Wilhelm, 43. The argument that reliance on technological advantage can be a vulnerability runs directly counter to the standard Air Force argument of its inherent strength, as outlined, for example, in Ronald R. Fogleman, "Air Power and Asymmetric Force Strategy," Air Power History, Vol. 43, No.2, Summer 1996, 5-13.

²⁰ Wilhelm, 34.

²¹ Cebrowski, 34.

²² Wilhelm, 13.

- ²³ T. X. Hammes, "War Isn't A Rational Business," Proceedings, July 1998, 24. Hammes notes that the Somalis defeated our "sensor grid" and in fact achieved information superiority over us.
- ²⁴ Charles C. Krulak, "The Strategic Corporal: Leadership in the Three Block War," Marine Corps Gazette, January 1999, 18-22.
- ²⁵ United States Marine Corps, Building a Corps for the 21st Century (Concepts & Issues 98) (Washington, D.C.: 1998), 38.
- ²⁶ Builder, 133.
- ²⁷ Ibid., 185.
- ²⁸ United States Army, One Team, One Fight, One Future (Washington, D.C.: n.d.), 21.
- ²⁹ Paul J. Hoeper, "Army Modernization: Preparing Today for Tomorrow," Army, October 1998, 33.
- ³⁰ Robert E. Hall, "Focus on Fundamentals of Soldiering In These Tough, Turbulent Times," Army, October 1998, 27-30.
- ³¹ David J. Lemelin, "Force XXI: Getting it Right," Military Review, November-December 1996. Lemelin offered leadership, training, and cohesion as the factors that should be focused on in peacetime. His article is representative of the call to an emphasis on the human dimension. See also Brian R. Reinwald, "Retaining the Moral Element of War," Military Review, January-February 1998, 69-76, which makes a compelling case that technology will not alter the nature of war.
- ³² Regarding the Army's principal role in dominant maneuver see Dennis J. Reimer, "Dominant Maneuver and Precision Engagement," Joint Force Quarterly, Winter 1996-97, 13-16.
- ³³ Russell F. Weigley, The American Way of War (Bloomington: Indiana University Press, 1973) is the classic text tracing the development of the American way of war. It has been updated by others such as Charles J. Dunlap, Jr. "Preliminary Observations: Asymmetrical Warfare and the Western Mindset" in Challenging the United States Symmetrically and Asymmetrically: Can America Be Defeated? (Carlisle Barracks, PA: U.S. Army War College, 1998), 1-17.
- ³⁴ Joint Pub 3-0, 1-2.
- ³⁵ Henry H. Shelton, "Operationalizing Joint Vision 2010," Military Review, June 1998, 81.
- ³⁶ Joint Chiefs of Staff, Joint Vision 2010 (Washington, D.C.: 1995), 34.
- ³⁷ Stephen J. Blank, "How We Will Lose the Next War With Russia: A Critique of U.S. Military Strategy" in Challenging the United States Symmetrically and Asymmetrically: Can America Be Defeated? (Carlisle Barracks, PA: U.S. Army War College, 1998), 257.
- ³⁸ Ralph Peters, "The New Strategic Trinity," Parameters, Winter 1998-99, 73-79.
- ³⁹ Joint Vision 2010, 25.
- ⁴⁰ Joint Chiefs of Staff, National Military Strategy, (Washington, D.C.: 1997). The mismatch between JV2010's operational concepts and expected missions is a principal critique of Jon A. Kimminau, "Joint Vision 2010: Hale or Hollow?" Proceedings, September 1997, 79. Kimminau considers JV2010 as particularly irrelevant to MOOTW and says our focus on major war impacts readiness and willingness for other military roles.
- ⁴¹ Carl H. Builder, "Keeping The Strategic Flame Alive," Joint Force Quarterly, Winter 1996-97, 77.
- ⁴² See, for example, John S. Richard, "The Learning Army: Approaching the 21st Century as a Learning Organization", (Unpublished Research Project, Carlisle Barracks, PA: U.S. Army War College, 1997).
- ⁴³ Hammes, 22.
- ⁴⁴ This basic distinction is made by Thomas P. M. Barnett, "The Seven Deadly Sins of Network-Centric Warfare," Proceedings, January 1999, 39, where he describes "coveting the business world's self-synchronization" as NCW's sin of envy.
- ⁴⁵ This is the so-called "butterfly theory," related by Hammes, p.23, among others. In a complex system a minor input (a butterfly flaps its wings) can produce a major change in output (unseasonal weather somewhere else).
- ⁴⁶ Martin Van Crevald, Command In War (Cambridge, MA: Harvard University Press, 1985), 266.
- ⁴⁷ Jack Gumbert, "Leadership in the Digitized Force," Military Review, January-February 1998, 17.
- ⁴⁸ Robert L. Bateman, "Force XXI and the Death of Auftragstaktik," Armor, January-February 1996, 14.
- ⁴⁹ Van Crevald, 270, makes the historical case. See also Douglas A. Macgregor, "Initiative in Battle: Past and Future," Marine Corps Gazette, August 1997, 62-67. Macgregor draws on Van Crevald and others and notes how information age technology can stifle initiative.
- ⁵⁰ Paul E. Blackwell and Gregory J. Bozek, "Leadership for the New Millenium," Military Review, May-June 1998, 45.
- ⁵¹ Gumbert, 19-20.

⁵² Dunlap, 7.

⁵³ Casualty estimates from Stephen C. Pelletiere and Douglas V. Johnson II, Lessons Learned : The Iran-Iraq War (Carlisle Barracks, PA: U.S. Army War College, 1991), 116. Regarding the "American myth of peace" see Ralph Peters, "Our New Old Enemies" in Challenging the United States Symmetrically and Asymmetrically: Can America Be Defeated? (Carlisle Barracks, PA: U.S. Army War College, 1998), 232-235.

⁵⁴ Samuel P. Huntington, The Clash of Civilizations and the Remaking of World Order (New York: Touchstone, 1996). Huntington traces the collapse of the nation-state system and forecasts increasing conflict, particularly along the fault lines of a civilization based structure.

⁵⁵ Gordon R. Sullivan and James M. Dubik, "Land Warfare in the 21st Century", (Carlisle Barracks, PA: U.S. Army War College, 1993), 27.

BIBLIOGRAPHY

- Barnett, Thomas P. M. "The Seven Deadly Sins of Network-Centric Warfare." Proceedings, January 1999, 36-39.
- Bateman, Robert L. "Force XXI and the Death of Auftragstaktik." Armor, January-February 1996, 13-15.
- Blackwell, Paul E. and Gregory J. Bozek. "Leadership for the New Millenium." Military Review, May-June 1998, 41-46.
- Blank, Stephen J. "How We Will Lose the Next War With Russia: A Critique of U.S. Military Strategy" in Challenging the United States Symmetrically and Asymmetrically: Can America Be Defeated? Carlisle Barracks, PA: U.S. Army War College. Strategic Studies Institute, 1998, 243-287.
- Builder, Carl H. The Masks of War. Baltimore: The Johns Hopkins University Press, 1989.
- _____. "Keeping The Strategic Flame Alive." Joint Force Quarterly, Winter 1996-97, 76-84.
- Cebrowski, Arthur K. and John J. Garstka. "Network-Centric Warfare: Its Origin and Future." Proceedings, January 1998, 28-35.
- Clausewitz, Carl Von. On War. Edited and Translated by Michael Howard and Peter Paret. Princeton, NJ: Princeton University Press, 1976.
- Dunlap, Charles J. "Preliminary Observations: Asymmetrical Warfare and the Western Mindset" in Challenging the United States Symmetrically and Asymmetrically: Can America Be Defeated? Carlisle Barracks, PA: U.S. Army War College. Strategic Studies Institute, 1998, 1-17.
- Felker, Edward J. "Airpower, Chaos, and Infrastructure: Lords of the Rings." Essays 1998. Washington, D.C.: National Defense University Press, 1998, 55-88.
- Fitzimonds, James R. and Jan M. Van Tol. "Revolutions in Military Affairs." Joint Force Quarterly, Spring 1994, 24-31.
- Fogleman, Ronald R. "Air Power and Asymmetric Force Strategy." Air Power History, Volume 43, Number 2, Summer 1996, 5-13.
- Gompert, David C. "National Security in the Information Age." Naval War College Review, Autumn 1998, 22-41.
- Gumbert, Jack. "Leadership in the Digitized Force." Military Review, January-February 1998, 13-23.

Hall, Robert E. "Focus on Fundamentals of Soldiering In These Tough, Turbulent Times." Army, October 1998, 27-30.

Hammes, T. X. "War Isn't A Rational Business." Proceedings, July 1998, 22-25.

Hoeper, Paul J. "Army Modernization: Preparing Today for Tomorrow." Army, October 1998, 33-43.

Huntington, Samuel P. The Clash of Civilizations and the Remaking of World Order. New York: Touchstone, 1996.

Keegan, John. The Face of Battle. New York: Vintage, 1977.

Kimminau, Jon A. "Joint Vision 2010: Hale or Hollow?" Proceedings, September 1997, 78-81.

Krulak, Charles C. "The Strategic Corporal: Leadership in the Three Block War." Marine Corps Gazette, January 1999, 18-22.

Lemelin, David J. "Force XXI: Getting it Right." Military Review, November-December 1996, 81-84.

Macgregor, Douglas A. "Initiative in Battle: Past and Future." Marine Corps Gazette, August 1997, 62-67.

Peters, Ralph. "Our New Old Enemies" in Challenging the United States Symmetrically and Asymmetrically: Can America Be Defeated? Carlisle Barracks, PA: U.S. Army War College. Strategic Studies Institute, 1998, 215-242.

_____. "The New Strategic Trinity." Parameters, Winter 1998-99, 73-79.

Pelletiere, Stephen C. and Douglas V. Johnson II. Lessons Learned : The Iran-Iraq War. Carlisle Barracks, PA: U.S. Army War College. Strategic Studies Institute, 1991

Reimer, Dennis J. "Dominant Maneuver and Precision Engagement." Joint Force Quarterly, Winter 1996-97, 13-16.

Reinwald, Brian R. "Retaining the Moral Element of War." Military Review, January-February 1998, 69-76.

Richard, John S. "The Learning Army: Approaching the 21st Century as a Learning Organization." Unpublished Research Project, U.S. Army War College, Carlisle Barracks, PA, 1997.

Shelton, Henry H. "Operationalizing Joint Vision 2010." Military Review, June 1998, 81-83.

Shy, John. "Jomini" in Makers of Modern Strategy. Edited by Peter Paret. Princeton, NJ: Princeton University Press, 1986.

Sullivan, Gordon R. and James M. Dubik. Land Warfare in the 21st Century. Carlisle Barracks, PA: U.S. Army War College. Strategic Studies Institute, 1993.

Toffler, Alvin. Powershift. New York: Bantam, 1990.

_____ and Heidi. War and Anti-War. Boston: Little, Brown and Company, 1993.

United States Air Force. Air Force Basic Doctrine (AFDD1) Washington, D.C.: September 1997

United States Army. One Team, One Fight, One Future. Washington, D.C.: n.d.

_____. Operations (FM 100-5) Washington, D.C.: June 14, 1993.

U. S. Joint Chiefs of Staff. Doctrine for Joint Operations (Joint Pub 3-0) Washington, D.C.: February 1, 1995.

_____. Joint Vision 2010. Washington, D.C.: 1995.

_____. National Military Strategy. Washington, D.C.: 1997.

United States Marine Corps. Building a Corps for the 21st Century (Concepts & Issues 98) Washington, D.C.: 1998.

Van Crevald, Martin. Command In War. Cambridge, MA: Harvard University Press, 1985.

Von Moltke, Helmuth. Moltke on the Art of War. Edited by Daniel J. Hughes. Translated by Harry Bell and Daniel J. Hughes. Novato, CA: Presidio Press, 1993.

Warden III, John A. "The Enemy As a System." Airpower Journal, Volume 79, Number 1, Spring 1995, 41-55.

Weigley, Russell F. The American Way of War. Bloomington: Indiana University Press, 1973.

Wilhelm, Karen S. "The USAF and Technological Assymetry: A Critique of Current Air Power Theory and Doctrine. Unpublished Monograph, U. S. Army Command and General Staff College, School of Advanced Military Studies, Fort Leavenworth, KN: 1995.